

## RESULTS OF THE ENTOMOLOGICAL COLLECTING EXPEDITION

Of the University of Kansas to Pima County, Arizona, in June and July, 1906.

By F. H. SNOW, University of Kansas, Lawrence.

This paper also includes Arizona material of former expeditions not previously identified, the location being given in each instance.

THE twenty-fifth collecting expedition in charge of the writer spent nine days in camp on the ranch of Mr. Thomas C. Kurtz, one and a half miles north of the railroad station at Tucson. The members of the party, in addition to the director, were Leverett A. Adams, for several years assistant in the department of zoology in the University of Kansas, now a member of the faculty of the State Normal School, at Greeley, Colorado, and S. E. Crumb, a student of the junior class. In the vicinity of this camp 3214 specimens were collected during the nine days, of which more than 2000 belong to the order of Hymenoptera. On July 3 the collecting party was increased by the arrival of Mr. Eugene Smyth, of Topeka, who had accompanied the writer on four preceding expeditions. On July 4 we started by wagon for Sycamore canyon, also called Brown canyon, in the southern portion of the Baboquivari mountains, and located our camp at a distance of sixty miles southwest of Tucson. This entire region is a typical desert area, and we found no small difficulty in obtaining a suitable supply of drinking water. At this second camp we collected insects for three weeks—from July 6 to 26—securing over 11,000 specimens, which, added to the Tucson material, made a total of 15,000 specimens as the result of the entire period of less than five weeks of actual work. At the second camp the Coleoptera took first place in the number of species and specimens collected, amounting to nearly one-half of the entire material. In regard to the scientific value of this material, Mr. Charles Liebeck, of Philadelphia, to whom I submitted many species of the Coleoptera which I was unable to identify from our previous collections, made the following statement: "The usual handicap, lack of Mexican material and synoptical tables in the *Biologia Centrali-Americana*, has hampered me more with this lot than with any other I have ever handled, due to the great number of apparent new species; and I must say that your 1906 catch certainly shows the finest lot of species I ever handled in one consignment.

Arizona is evidently a very rich field, and many possibilities are yet in store. I think it safe to assert that nearly all of those species (nearly sixty in number) marked simply as 'undetermined' are undescribed, and I can most surely state that they are not, or have not yet been, included in the United States fauna."

One of the most interesting captures among the Coleoptera at our second camp, was a limited number of specimens of the rare *Amblychila baroni* Rivers, which was found among the rocks near the summit of the mountain ridges between which our camp was situated—from 400 to 500 feet above the bottom of the canyon.

The altitude of the Baboquivari camp is 3750 feet above sea-level. The vegetation is largely of the usual type of the arid regions of the United States—many forms of cactus, yucca, agave or meschal, mesquite, and greasewood—and in the bottom of the canyon are trees of considerable size of the sycamore, walnut, and live oak. There were three quite copious thunder-showers during the three weeks of our stay, but in no case was there sufficient precipitation to cause the slightest run of water in the dry bed of the canyon. My hearty appreciation is hereby expressed of the most efficient services of my associates, Messrs. Adams, Crumb, and Smyth. Mr. Adams, in addition to his energetic work in collecting insects, also made a collection of birds, numbering 34 species, a list of which is contributed by him to the program for this meeting of the Academy.

#### I.—LIST OF COLEOPTERA.

For valuable services in the determination of species I am indebted to Mr. Charles Liebeck, of Philadelphia, and Mr. H. C. Fall, of Pasadena, Cal. I am also under obligations to Mr. A. B. Wolcott, of Chicago, for efficient aid in the family Cleridæ.

The numbers are those of Henshaw's lists.

When no locality is appended, the Baboquivari mountains are intended.

##### Family CICINDELIDÆ.

*Amblychila baroni* Rivers.

12 *Tetracha carolina* Linn. Tucson.

57 *Cicindela lemniscata* Lec.

wickhami W. Horn.

64b 16-punctata Kl.

##### Family CARABIDÆ.

139 *Calosoma semilæve* Lec.

213 *Pasimachus mexicanus* Gray.

218 punctulatus Hald.

220 *Scarites subterraneus* Fab., var. *californicus* Lec. Tucson; San Bernardino ranch, 1905.

## Family CARABIDÆ.

- 275 *Clivina bipustulata* Fab. San Bernardino ranch, 1905.  
 345 *Bembidium lugubre* Lec.  
       *timidum* Lec.  
 454 *Tachys vivax* Lec.  
 557 *Pterostichus subcordatus* Lec. San Bernardino ranch, 1905.  
 672 *Amara californica* Dej.  
 683       *musculus* Say.  
       *Calathus*, new species near *opaculus* Lec.  
 746?       *behrensii* Mann.  
 771 *Platynus brunneomarginatus* Mann., var. *bicoloratus* Germ.  
 772       *extensicollis* Say, var. San Bernardino ranch, 1905.  
       two new species? .  
 866 *Tetragonoderus fasciatus* Hald.  
 875 *Lebia majuscula* Chd.  
 876       *atriceps* Lec.  
 882       *viridis* Say.  
 916 *Axinopalpus fusciceps* Lec.  
 931 *Plochionus timidus* Hald.  
 940 *Cymindis cribricollis* Dej.  
 960 *Helluomorpha texana* Lec.  
 961       *ferruginea* Lec.  
 984 *Brachynus fidelis* Lec.  
 986       *carinulatus* Mots.  
       two undetermined species.  
 991 *Chlænienus ruficauda* Chd.  
 1008 *Chlænienus leucoscelis* Chev.  
       new species.  
 1047 *Oodes elegans* Lec.  
 1057 *Pisoma setosum* Lec.  
 1070 *Discoderus robustus* Horn.  
 1071       *amœnus* Lec.  
 1112 *Harpalus clandestinus* Lec.  
 1134 *Selenophorus palliatus* Fab.  
 1125       *pedicularius* Dej.  
 1140 *Stenolophus conjunctus* Say.  
 1179 *Anisodactylus opaculus* Lec. Tucson.  
 1192       *arizonæ* Casey.  
       new species.  
 1214 *Pseudomorpha angustata* Horn.

## Family DYTISCIDÆ.

- 1246 *Laccophilus pictus* Lap. At both camps.  
 1251       *mexicanus* Aube.  
       *truncatus* Mann. Tucson.  
 1306 *Deronectes striatellus* Lec.  
       *æquinachialis* Clark.  
 1413 *Agabus lugens* Lec.  
 1458 *Rhantus flavogriseus* Cr. San Bernardino ranch, 1905.  
 1459       *binotatus* Harr.  
 1461       *atricolor* Aube.  
 1495a *Thermonectes nigrofasciatus* Aube.  
 1497       *marmoratus* Hope. At both camps.



## Family HISTERIDÆ.

- 3457 *Hololepta cacti* Lec. Tucson.  
 3487 *Hister cœnosus* Er.  
           undetermined species near *abbreviatus* Fab.  
 3516       *vernus* Say.  
 9932       *lubricans* Casey.  
 3576 *Saprinus pectoralis* Lec.  
 3605       *neglectus* Mars.  
 3608       *lubricus* Lec.  
 3610       *fimbriatus* Lec.

## Family TROGOSITIDÆ.

- 3833 *Trogosita virescens* Fab.  
 3841 *Tenebriodes sinuata* Lec.  
       *Hesperobœnus yuccæ* Sz.

## Family PARNIDÆ.

- 3920 *Dryops productus* Lec. At both camps.

## Family ELATERIDÆ.

- 4064 *Anelastes drurii* Kirby.  
       *Adelocera mexicana* Candize.  
 4090 *Chalcolepidius smaragdinus* Lec.  
 10035       *behrensi* Cand.  
           *tartarus* Fall.  
           *snowi* Casey. New species. Bill Williams fork, 1903.  
           *idoneus* Casey. New species. Bill Williams fork, 1903.  
           *arizonicus* Casey. New species. Bill Williams fork, 1903.  
           *abdominalis* Casey. New species. Bill Williams fork,  
           1903.  
           *simulans* Casey. New species. Bill Williams fork, 1903.  
           *rectus* Casey. New species. San Bernardino ranch,  
           1905.  
           *ostentus* Casey. New species. Congress Junction and  
           Bill Williams fork, 1903.

[The above seven new species of *Chalcolepidius* are described from my material in the *Canadian Entomologist* for February, 1907.]

- 4092 *Alaus lusciosus* Hope.  
 4113 *Cardiophorus tenebrosus* Lec.  
           *aptopoides* Cand.  
       *Horistonotus*, new species.  
 4128       *simplex* Lec.  
 4135? *Esthesopus præditus* Horn.  
 4136       *parcus* Horn.  
 4137       *dispersus* Horn.  
           new species.  
           undetermined species.  
       *Aptopus spadiceus* ?  
       *Anchastus*, undetermined species.  
 4181 *Monocrepidius lividus* De G.  
 4185       *vespertinus* Fab.

Family ELATERIDÆ.

- 4187 *Monocrepidius* *lathoides* Lec.  
 4188                    *sordidus* Lec.  
                          *elegans*. San Bernardino ranch, 1905.  
 4194 *Dicrepidius* *corvinus* Cand.  
       *Ludius* *peninsularis* Champ. ?  
 42772                   *hepaticus* Germ.  
       *Agriotes*, undetermined species.  
 4306 *Melanotus* *macer* Lec.  
 4322                    *fissilis* Say.  
 4323                    *communis* Gyll.

Family BUPRESTIDÆ.

- Agæocera*, undetermined species.  
 4575a *Psiloptera* *webbii* Lec.  
       *Dicerca*, undetermined species. Tucson.  
 4636 *Chrysobothris* *octocola* Lec.  
 4656                    *gemmata* Lec.  
 10085                   *merkelii* Horn.  
 4672 *Thrincopyge* *ambiens* Lec.  
 4675 *Polycesta* *velasco* L. & G.  
       *Acmæodera* *conoidea* Fall.  
 4708                    4-*vittata* Horn.  
 10107                   *delumbis* Horn.  
                          undetermined species. San Bernardino ranch, 1905.  
 4737 *Agrilus* *addendus* Cr.  
 4749                    *obolinus* Lec.  
                          undetermined species.

Family LAMPYRIDÆ.

- 4768 *Lycus* *cruentus* Lec.  
 4769                    *fernandezii* Duges.  
 4772 *Lycostomus* *loripes* Chev.  
 4817 *Pyropyga* *fenestralis* Melsh. Tucson.  
 4845 *Microphotus* *dilatatus* Lec.  
 4862 *Spathizus* *bicolor* Lec.  
       *Polemius*, undetermined species.

Family MALACHIDÆ.

- 5013 *Collops* *vittatus* Say.  
                          *regularis* Gorh. San Bernardino ranch, 1905.  
 5061 *Attalus* *rufiventris* Horn.  
 5077 *Pristoscelis* *convergens* Lec. San Bernardino ranch, 1905.

Family CLERIDÆ.

- 5131 *Cymatodera* *puncticollis* Bland.  
 5134                    *cylindricollis* Chev.  
 5135                    *brunnea* Mels.  
 5142                    *morosa* Lec.  
 5151                    *ovipennis* Lec.  
                          *peninsularis* Schaeffer.

## Family CLERIDÆ.

- Cymatodera latefascia Schaeffer.  
 umbrina Fall.  
 subsimilis Wolcott. New species.
- 5164 Clerus spinolæ Lec.  
 Hydrocena cincta Spin.
- 5230 Necrobia rufipes Fab. Tucson.

## Family PTINIDÆ.

- 10150 Ctenobium cinereum Horn.  
 5338 Sinoxylon simplex Horn.  
 5340 sericans Lec.  
 5354 Amphicerus fortis Lec.

## Family SCARABÆIDÆ.

- 5432a Canthon corvinus Horn.  
 5437 indigaceus Lec.  
 5445 Copris remotus Lec.  
 5448 carolina Linn.  
 5461 Onthophagus velutinus Horn.  
 new species.  
 Atænius haroldi Steinbeil. San Bernardino ranch, 1905.
- 5529 Aphodius vittatus Say.  
 5581 Ochodæus biarmatus Lec.  
 5617 Trox punctatus Germ. Both camps.  
 5701 Diplotaxis popino Casey.  
 three undetermined species.  
 near tristis Kirby.
- 5713 mœrens Lec.  
 5722 atratula Lec.
- Lachnosterna labidens Schaeffer?.
- 10261 vetula Horn.  
 10270 lenis Horn. San Bernardino ranch, 1905.
- 5804 Phytalus debilis Horn.  
 5809 Listrochelus scoparius Lec. B. and T.  
 5812 mucoreus Lec.  
 5832 Anomala centralis Lec.  
 5846 Pelidnota lugubris Lec.  
 5859 Cyclocephala longula Lec.  
 5862 villosa Burm.  
 comata Bates.  
 5865 dimidiata Burm.
- 5870 Ligyrus ruginasus Lec.  
 5891 Phileurus illatus Lec.  
 5893 Allorhina mutabilis Gory.  
 Gymnetis impius Fall.
- 5898 Euphoria verticalis Horn.  
 5903 devulsa Horn.  
 5907 leucographa Gory.  
 holochloris Fab.
- 5919 Cremastochilus ineptus Horn.  
 mexicanus Schaum.

Family CERAMBYCIDÆ.

- 5953 *Mallodon dasystemus* Say.  
 5955           *serrulatus* Lec.  
 5957 *Derobrachus geminatus* Lec.  
 6026 *Hypexilis pallida* Horn.  
 6032 *Axestinus obscurus* Lec.  
 6036 *Osmidus guttatus* Lec.  
       *Peribacum reticolle* Bates.  
 6039 *Eburia ulkei* Bland.  
       undetermined species.  
 6055 *Elaphidion alienum* Lec.  
 6059           *inerne* Newm.  
 6067           *tenue* Lec.  
       *Aneflus*, new species.  
 6076           *protensus* Lec.  
 6078 *Eustroma validum* Lec.  
 6105 *Rhopalophora longipes* Say.  
 6111 *Elytroleptus ignitus* Lec.  
 6115 *Callichroma plicatum* Lec.  
 6121 *Stenaspis verticalis* Serv.  
 6122           *solitaria* Say.  
       *Metaleptus*, new species.  
 6126 *Tragidion annulatum* Lec.  
 6135 *Æthecerus latecinctus* Horn.  
 6145 *Oxoplus jocosus* Horn.  
 10297 *Crossidius blandi* Casey. San Bernardino ranch, 1905.  
 6160 *Ischnocnemis bivittatus* Dup.  
 6370 *Monilema appressum* Lec.  
 6372           *gigas* Lec. Both camps.  
 6372           *semipunctatum* Lec.  
 6410 *Cœnopœus palmeri* Lec.  
       *Leptostylus yuccæ* Fall. New species. San Bernardino ranch, 1905.  
 6433 *Dectes spinosus* Say. Tucson.  
 6471 *Ataxia crypta* Say, var.  
 10324 *Peritapnia fabra* Horn.

Family CHRYSOMELIDÆ.

- *Lema longipennis* Linell.  
 6571           *balteata* Lec.  
 6582 *Euryscopa lecontei* Cr. Both camps.  
       *parvula* Jac.  
 6584 *Coscinoptera æneipennis* Lec.  
 6589           *mucorea* Lec.  
 6593 *Megalostomis pyropyga* Lac.  
 6594           *major* Cr.  
 6596 *Babia 4-guttata* Oliv.  
 6596b          *tetraspilota* Lec.  
 6597 *Saxinis apicalis* Lec.  
       *scutellaris* Schaeffer. New species. San Bernardino ranch,  
       1905. Described in the Bulletin Mus. Brooklyn Inst. Arts  
       and Sciences, October, 1906.  
 10346          *sonorensis* Jac.



## Family CHRYSOMELIDÆ.

- 6600 *Urodera crucifera* Lac.  
*Chlamys arizonensis* Linell.
- 6605 *Exema compersa* Mann.  
*Cryptocephalus simulans* Schaeffer. San Bernardino ranch, 1905.  
*simulans* Schaefer, var.  
*basalis* Suffr., var.
- 6651 *Griburius montezumæ* Suffr.
- 6690 *Pachybrachys atomarius* Melsh.  
 new species.  
 undet. species.
- 6747b *Paria 4-notata* Say.  
*Nodonota arizonica* Schaeffer. New species. San Bernardino ranch,  
 1905. Described in the Bulletin Mus. Brooklyn Inst. Arts and  
 Sciences, October, 1906.
- 10356 *Metachroma aterrimum* Horn. San Bernardino ranch, 1905.
- 6774 *Colaspis brunnea* Fab., var. Tucson.
- 6787 *Doryphora lineolata* Stal.
- 6792 *haldemani* Rog.
- 6794 *rubiginosa* Rog.
- 6797 *Zygogramma opifer* Stal.
- 6798 *continua* Lec.
- 6811 *dislocata* Rog.
- 6813 *tortuosa* Rog.
- 6816 *multiguttata* Stal.  
*clathrata* Jac.  
 new species.
- Plagioderma purpurea* Linell.
- 6836 *Lina arizonæ* Cr. Tucson.  
*Androlyperus*, new species.  
*Andrector ruficornis* Oliv. Tucson.
- 10383 *Scelolyperus flaviceps* Horn.  
*Triarius*, new species, or possibly a color variety of *T. lividus* Lec.
- 6861 *Diabrotica 12-punctata* Oliv. Both camps.
- 6883 *balteata* Lec. Tucson.  
 two undetermined species.
- Cneorane mexicana?* Jacoby.
- 6916a *Monoxia angularis* Lec.
- 6933 *Edionychis lugens* Lec., var.
- 10410 *tenuilineata* Horn.  
*extrema* Harold.  
 two undetermined species.
- 6954 *Disonycha abbreviata* Melsh.
- 6962 *Haltica carinata* Germ., var. or perhaps a new species.
- 6966 *obliterata* Lec.  
 undetermined species.
- 7063 *Microrhopala rubrolineata* Mann.  
*Brachycoryne pumila* Boh.
- 7098 *Cassida bivittata* Say.  
 undetermined species. San Bernardino ranch, 1905.
- 7106 *Coptocycla lecontei* Cr.  
*profligata* Boh.

Family BRUCHIDÆ.

- 7137 *Bruchus prosopis* Lec. Tucson.  
7149           *amicus* Horn. Both camps.

Family TENEBRIONIDÆ.

- 7183 *Eurymetopon emarginatum* Casey.  
7200 *Epitragus submetallicus* Lec.  
7204           *pruinus* Horn.  
7219 *Zopherus tristis* Lec.  
7238 *Cryptoglossa verrucosa* Lec. Tucson.  
7243 *Centrioptera variolosa* Horn. Both camps.  
7251 *Ologyptus anastomosis* Say.  
7255 *Asida mancipata* Horn.  
7268           *parallela* Lec. Tucson.  
7284*a*       *rimata* Lec.  
7307 *Eusattus reticulatus* Say.  
7322 *Eleodes carbonaria* Say.  
          *form soror* Lec. San Bernardino ranch, 1905.  
7324           *quadricollis* Esch. Both camps.  
7325           *humeralis* Lec.  
7327           *extricata* Say.  
7331           *longicollis* Lec.  
10560       *wickhami* Horn.  
7339           *nigrina* Lec.  
7360           *subnitens* Lec.  
          *dissimilis*, var. *nevadensis* Blaisdell.  
          new species.  
7379 *Argoporus costipennis* Lec.  
10568       *alutacea* Casey.  
7392 *Nyctobates subnitens* Horn.  
7552 *Notibius gagates* Horn.  
7517 *Platydema inquilinum* Linell.  
          undetermined species, near *ruficollis* Lap.  
10631 *Strongylium atrum* Champ.

Family CISTELIDÆ.

- 10647 *Hymenorus grandicollis* Champ.  
10653           *prolixus* Casey.  
10678 *Telesicles caudatus* Champ. San Bernardino ranch, 1905.

Family LAGRIDÆ.

- Statira defecta* Schaeffer.  
          *huachuchæ* Schaeffer.

Family ŒDEMERIDÆ.

- 7739 *Oxaxis cana* Lec.  
7743           *sericea* Horn. San Bernardino ranch, 1905.

Family MORDELLIDÆ.

- 7760 *Diclidia lætula* Lec.  
          *marginalis* Say. San Bernardino ranch, 1905.  
7847 *Mordellistena*, new species.

## Family ANTHICIDÆ.

*Stereopalpus impressicollis* Casey?. San Bernardino ranch, 1905.  
*Notoxus curvitrachus* Casey.

- 7938 *Anthicus sturmii* Laf.  
 7948           *confinis* Lec. Tucson.

## Family MELOIDÆ.

- 8058 *Macrobasis pupurea* Horn.  
 8066           *lauta* Horn.  
 8067           *tenella* Lec.  
 8069           *segmentata* Say.  
 10733          *tenuilineata* Horn.  
 8089           *insignia* Horn. San Bernardino ranch, 1905.  
 8991 *Epicauta pardalis* Lec. Both camps.  
           *alastor* Skinner.  
           undetermined species.  
 8110 *Pyrota postica* Lec.  
 10748 *Tegrodera latecincta* Horn. Tucson.

## Family RHIPIPHORIDÆ.

- 8183 *Myodites scaber* Lec.

## Family OTIORHYNCHIDÆ.

- 8249 *Eupagoderes sordidus* Lec.  
 8250           *argentatus* Lec. Tucson.  
 8315 *Pandeletejus cinereus* Horn.  
 8338 *Coleocerus marmoratus* Horn.

## Family CURCULIONIDÆ.

- 8373 *Apion sordidum* Smith.  
 8500 *Lixus perforatus* Lec.  
 10860 *Dinocleus denticollis* Casey.  
 8571 *Endalus limatulus* Gyll. San Bernardino ranch, 1905.  
 8603 *Otidocephalus vittatus* Horn.  
 8607           *chevrolatii* Horn.  
 8654 *Anthonomus hirtus* Lec. Tucson.  
 11056 *Tychius hispidus* Casey.  
 8749 *Chalcodermus spinifer* Horn.  
 8760 *Acalles prosus* Lec.  
           *Cryptorhynchus*, undetermined species.  
           *Zascelis oblonga*.  
 8807 *Zygops seminiveus* Lec.  
 8868 *Baris strenua* Lec. San Bernardino ranch, 1905.  
 8886 *Pseudobaris fareta* Lec.  
           *Stictobaris*, new species. San Bernardino ranch, 1905.

## Family CALANDRIDÆ.

- 8973 *Scyphophorus acupunctatus* Gyll.  
           undetermined species.  
           Calandrid, undetermined genus and species, near *Nyssonotus*.  
           *Sphenophorus*, undetermined species, near *oblitus* Lec. San Bernardino ranch, 1905.  
           undetermined species, near *mormonus* Chittenden. San Bernardino ranch, 1905.

Family ANTHRIBIDÆ.

9221? *Cratoparis lunatus* Fab.  
undetermined species.

SUMMARY OF FAMILIES AND SPECIES OF COLEOPTERA.

Cicindelidæ.....	5	Malachidæ.....	4
Carabidæ.....	45	Cleridæ.....	12
Dytiscidæ.....	11	Ptinidæ.....	4
Gyrinidæ.....	2	Scarabæidæ.....	39
Hydrophilidæ.....	6	Cerambycidæ.....	34
Silphidæ.....	1	Chrysomelidæ.....	63
Staphylinidæ.....	7	Bruchidæ.....	2
Scaphidiidæ.....	1	Tenebrionidæ.....	29
Phalacridæ.....	1	Cistelidæ.....	3
Coccinellidæ.....	8	Lagriidæ.....	2
Endomychidæ.....	1	Ædemeridæ.....	2
Erotylidæ.....	1	Mordellidæ.....	3
Cryptophagidæ.....	1	Anthicidæ.....	4
Dermestidæ.....	5	Meloidæ.....	11
Histeridæ.....	9	Rhipiphoridæ.....	1
Trogositidæ.....	3	Otiorhynchidæ.....	4
Parnidæ.....	1	Curculionidæ.....	16
Elateridæ.....	35	Calandridæ.....	5
Buprestidæ.....	15	Anthribidæ.....	2
Lampyridæ.....	7		

Totals: Families, 39; species, 395.

II.—LIST OF LEPIDOPTERA.

My grateful acknowledgments for assistance in the determination of species in this order are hereby tendered to Dr. Henry Skinner, Dr. H. G. Dyar, Prof. John B. Smith, Dr. W. G. Dietz, Mr. W. D. Kearfott, and Mr. G. W. Taylor.

The locality is the Baboquivari, mountains unless otherwise stated.

Numbers according to Smith's check-list of 1903.

Family NYMPHALIDÆ.

- 103 *Melitæa chara* Edw.
- 113        *definita* Aaron.
- 137*a* *Synchlœ crocale* Edw.
- 158 *Pyrameis cardui* Linn.
- 160*a* *Junonia negra* Feld.
- 182*a* *Heterochroa californica* Butl.
- 185 *Apatura leilia* Edw.
- 205 *Neonympha rubricata* Edw.

Family LIBYTHEIDÆ.

- 255*a* *Libythea bachmani* Kirtl.

## Family ERYCINIDÆ.

- 257 *Lemonias duryi* Edw.  
 261           *palmerii* Edw.  
 265 *Calephelis australis* Edw.

## Family LYCÆNIDÆ.

- 283 *Thecla melinus* Hbn.  
 303           *blenina* Hew.  
 311           *leda* Edw.  
 387 *Lycæna isola* Reak. Tucson.  
 388           *gyas* Edw. Tucson.  
 393           *exilis* Edw.  
 394           *marina* Reak.

## Family PAPILIONIDÆ.

- 423 *Catopsilia eubule* Linn.  
 433 *Colias cæsonia* Stoll.  
 453 *Terias mexicana* Bdv.  
 454           *nicippe* Cram. Tucson.  
 469 *Papilio philenor* Linn.  
 473           *bairdii* Edw.  
 485           *daunus* Bdv.

## Family HESPERIDÆ.

- 495 *Copæodes waco* Edw.  
 495a           *procris* Edw.  
 604 *Amblyscirtes ænus* Edw.  
 620 *Pyrgus nessus* Edw.  
           *occidentalis* Skinner.  
 640 *Nisoniades clitus* Edw.  
 645 *Systasea pulverulenta* Feld.  
 649 *Pholisora catullus* Fabr.  
 652           *ceos* Edw.  
 661 *Eudamus pylades* Scudd.  
 666           *hippalus* Edw.  
 687 *Heteropia melon* Gdm. and Salv., var. *arizonensis* Skinner.

## Family SPHINGIDÆ.

- 725 *Amphion nessus* Cram.  
 729 *Deilephila lineata* Fabr.

## Family SATURNIIDÆ.

- 814 *Agapema galbina* Clem.

## Family CERATOCAMPIDÆ.

- 829 *Adelocephala heiligbrodtii* Harv.

## Family SYNTOMIDÆ.

- Syntomeida benta* Skinner. New species. Described in *Entomological News*, December, 1906.  
 866 *Ctenucha venosa* Wlk. Tucson.

Family ARCTIIDÆ.

- 921 *Ptychoglène coccinea* Hy. Edw.  
 950 *Estigmene acraea* Dru.  
 1005 *Euchætias murina* Stretch.  
           *bolteri* Stretch. San Bernardino ranch, 1905.  
 1016 *Pygarctia elegans* Stretch.  
 1038 *Eupseudosoma involutum* Sepp. San Bernardino ranch, 1905.  
 1041 *Calidota zella* Dyar.

Family AGARISTIDÆ.

- 1059 *Alypiodes bimaculata* H.-S.  
 1066 *Copidryas gloveri* G. & R.

Family NOCTUIDÆ.

- Cyathissa quadrata* Sm. New species.  
 1260 *Perigæa albolabes* Grt.  
 1359 *Hadena indirecta* Grt. Oak Creek canyon, 1904.  
 1372           *smaragdina* Neum.  
 1453 *Laphygma flavimaculata* Harv.  
           *Aleptina flavomedia* Sm. New species.  
 1642 *Peridroma rudens* Harv.  
 2148 *Trichoclea decepta* Grt. San Bernardino ranch, 1905.  
 2149           *nova* Sm. San Bernardino ranch, 1905.  
 2161 *Leucania unipunctata* Harv.  
 2478 *Trileuca buxea* Grt. Tucson.  
 2542 *Schinia sexplagiata* Sm. San Bernardino ranch, 1905.  
 2548           *unimaculata* Sm.  
 2563           *tertia* Grt. San Bernardino ranch.  
           *accessa* Smith. New species. San Bernardino ranch, 1905.  
 2645 *Oxycnemis advena* Grt.  
 2660 *Neumœgenia poetica* Grt.  
 2661 *Narthecephora pulverea* Sm. Tucson.  
 2688 *Plusiodonta compressipalpis* Gn.  
           *Ogdoconta altura* Barnes.  
 2811 *Pleonectyptera habitalis* Wlk.  
           new species.  
 2842 *Erastria propera* Grt.  
 2852 *Azenia edentata* Grt.  
 2863 *Xanthoptera clausula* Grt.  
 2864           *semiflava* Gn.  
 2869 *Thalpochares daria* Druce.  
 2871           *fortunata* Grt.  
 2872           *perita* Grt.  
 2877 *Tripudia opipara* Hy. Edw.  
 2905 *Acontia expolita* Grt.  
 2912           *biplaga* Gn.  
 2916           *quadriplaga* Sm.  
 2924           *elegantula* Harv. Tucson.  
 2933           *libedis* Sm.  
           *alata* Sm.  
 2937 *Fruva fasciatella* Grt.

## Family NOCTUIDÆ.

- 2946 *Spragueia plumbifimbriata* Grote.  
 2950 *funeralis* Grote.  
 2953 *tortricina* Zeller. Taken also at Tucson.  
 2971 *Parora texana* Sm.  
     *Isogona segura* Barnes.  
 3003 *Euclidia dyari* Sm.  
 3008 *Melipotis nigrescens* G. & R.  
 3009 *pallescens* G. & R.  
 3010 *perlata* Hy. Edw.  
 3019 *Cirrhobolina deducta* Morr.  
 3020 *mexicana* Behr.  
 3021 *vulpina* Hy. Edw.  
 3191 *Heteranassa fraterna* Sm.  
 3192 *minor* Sm.  
 3202 *Yrias clientis* Grt.  
 3204 *volucris* Grt.  
 3205 *repentis* Grt.  
     *strigalis* Smith.  
 3235 *Erebus odora* Linn.

## Family NOTODONTIDÆ.

- Notodonta, new species.  
*Dasylophia zethus* Druce. San Bernardino ranch, 1905. New to United States.  
 3396 *Heterocampa lunata* Hy. Edw. San Bernardino ranch, 1905.  
     *pyrrha* Druce.  
 3428 *Gluphisia septentrionalis* Wlk. San Bernardino ranch, 1905.  
     *Notela jaliscana* Schaus.  
     *Hapigia xolotl* Druce.

## Family LIPARIDÆ.

*Archylus tener* Druce.

## Family GEOMETRIDÆ.

- 3610 *Coryphista meadii* Pack. Oak Creek canyon, 1904.  
 3619 *Phylace luteolata* Hulst. Oak Creek canyon, 1904.  
 3638 *Zenopheps lignicolorata* Pack. Oak Creek canyon, 1904.  
 3680 *Hydriomena mirabilata* Grt. Oak Creek canyon, 1904.  
 3690 *Cœnocalpe aurata* Grt. Oak Creek canyon, 1904.  
 3691 *magnoliata* Gn. Oak Creek canyon, 1904.  
 3697 *polygrammata* Hulst. San Bernardino ranch, 1905.  
 3760 *Cosymbia pannaria* Gn. San Bernarnino ranch, 1905.  
 3796 *Eois demissaria* Hbn. San Bernardino ranch, 1905.  
 3805 *ossularia* Hbn. Taken also at San Bernardino ranch, 1905.  
 3808 *balistaria* Gn. San Bernardino ranch, 1905.  
 3809 *rufescens* Hulst. San Bernardino ranch, 1905.  
 3838 *Chlorochlamys chloroleucaria* Gn. San Bernardino ranch, 1905.  
 3857 *Synchlora denticulata* Walker. San Bernardino ranch, 1905.  
 3878 *Fernaldella fimetaria* G. & R.  
 3893 *Chloraspilates bicoloraria* Pack. San Bernardino ranch, 1905.  
 3916 *Deilinia behrensaria* Hulst., var? Oak Creek canyon, 1904; also, at San Bernardino ranch, 1905.

## Family GEOMETRIDÆ.

- 3929 *Sciagraphia punctolineata* Pack.  
 3948 *Macaria s-signata* Pack. Taken also at San Bernardino ranch, 1905.  
     *near mendicata* Hulst. San Bernardino ranch, 1905.  
 4081 *Alcis obliquaria* Grote. San Bernardino ranch, 1905.  
 4085      *haydenata* Pack. Oak Creek canyon, 1904.  
 4096 *Meris alticola* Hulst. Oak Creek canyon, 1904.  
 4102 *Tornos scolopacinarius* Green. Tucson.  
 4103      *abjectarius* Hulst.  
 4106 *Glaucina pygmeolaria* Grt.  
     *puellaria* Dyar.  
     *Sabulodes*, undetermined species. San Bernardino ranch, 1905.  
 4276 *Metanema vanusaria* Streck. Oak Creek canyon, 1904.  
 4289 *Stenispilates meskearia* Pack. San Bernardino ranch, 1905.

## Family LIMACODIDÆ.

- 4419 *Euclea pænulata* Clem.?  
     *incisa* Harr. San Bernardino ranch, 1905.  
 4436 *Prolimacodes trigona* Hy. Edw.  
     *Limacodes oropeso*.

## Family MEGALOPYGIDÆ.

- 4448 *Megalopyge opercularis* S. & A.

## Family PYROMORPHIDÆ.

- 4458 *Triplocris fusca* Hy. Edw.  
 4461      *constans* Hy. Edw.

## Family THYRIDÆ.

*Dysodia*, new species.

## Family PYRALIDÆ.

- 4629 *Glaphyria reluctalis* Hulst.  
 4634 *Symphysa eripalis* Grt. San Bernardino ranch, 1905.  
     *simplicialis* Kearfott. New species. San Bernardino ranch,  
     1905. Described in *Entomological News*, January, 1907.  
 4651 *Diastictis fracturalis* Zell.  
 4680 *Agathodes monstrialis* Gn.  
 4692 *Hellula undalis* Fab. San Bernardino ranch, 1905.  
 4694 *Terastia metriculosalis* Gn.  
 4718 *Loxostege helvialis* Wlk. Both camps, and at San Bernardino ranch,  
     1905.  
 4729      *albicerialis* Grt. San Bernardino ranch, 1905.  
 4731      *labeculalis* Hulst.  
 4741      *ophionalis* Wlk. Bill Williams fork, 1903, and Tucson.  
 4766 *Titanio helianthialis* Murtf. Tucson and Bill Williams fork, 1903, and  
     San Bernardino ranch, 1905.  
 4780 *Phlyctænia extricalis* Gn. San Bernardino ranch, 1905.  
 4827 *Pyrausta tyralis* Gn.  
 4849 *Noctuelia thalialis* Wlk.  
 4871 *Elophila fulcalis* Clem. Bill Williams fork, 1903, and San Bernardino  
     ranch, 1905.  
     *schaefferalis* Dyar. Oak Creek canyon, 1904.



## Family PYRALIDÆ.

- 4906 *Acallis griphalis* Hulst.  
 4914 *Schœnobius sordidellis* Zinck. San Bernardino ranch, 1905.  
 4917 *mellinellus* Clem. Bill Williams Fork, 1903, and San Bernardino ranch, 1905.  
 4924 *Prionapteryx achatina* Zell.  
     *baboquivariella* Kearfott. New species.  
 4964 *Crambus coloradellus* Fern.  
     near *haustuellus*. San Bernardino ranch, 1905.  
     new species.  
 4984 *Thaumatopsis magnifica* Fern.  
 4991 *Ommatopteryx ocella* Haw. San Bernardino ranch, 1905, and Tucson.  
 4994 *Argyria argentana* Martyn.  
 5008 *Dicymolomia metalliferalis* Pack. San Bernardino ranch, 1905.  
 5021 *Cacozelia basiochrealis* Grt.  
 5024 *Jocara dentilineella* Hulst.  
 5027 *Yuma trabalis* Grt.  
 5029 *Benta asperatella* Clem.  
 5030 *melanogrammos* Zell.  
 5046 *Attacapa callipeplella* Hulst. San Bernardino ranch, 1905.  
 5164 *Elasmopalpus lignocellus* Zell. Tucson.  
 5176 *Epischnia boisduvaliella* Gn.? San Bernardino ranch, 1905.  
 5182 *Getulia flavidorsella* Rag.  
 5201 *Melitara fernaldalis* Hulst.  
 5206 *Zophodia glaucatella* Hulst.  
     *polingella* Dyar.  
 5230 *Heterographis morrisonella* Rag. San Bernardino ranch, 1905.  
 5253 *Homœosoma electellum* Hulst. San Bernardino ranch, 1905.  
 5263 *Ephestioides gilvescentella* Rag.  
 5278 *Plodia interpunctella* Hbn. San Bernardino ranch, 1905.  
 5279 *Ragonotia dotalis* Hulst. San Bernardino ranch, 1905.  
 5295 *Saluria dichroella* Rag.

## Family PTEROPHORIDÆ.

- 5347 *Alucita belfragei* Fish. Tucson.

## Family TORTRICIDÆ.

- 5410 *Bactra furfurana* Haw.  
 5484 *Eucosma bolanderana* Wlsm.  
 5533 *pulveratana* Wlsm. Bill Williams fork, 1903, and San Bernardino ranch, 1905.  
 5537 *constrictana* Zell. San Bernardino ranch, 1905.  
 5539 *solicitana* Wlk. San Bernardino ranch, 1905.  
 5541 *strenuana* Wlk. San Bernardino ranch, 1905.  
 5542 *perplexana* Fern. San Bernardino ranch, 1905.  
 5553 *scudderiana* Clem. San Bernardino, 1905.  
 5582 *Cydia perangustana* Wlsm. San Bernardino ranch, 1905.  
 5599 *rossleri* Zell. San Bernardino ranch, 1905.  
 5639 *Epinotia crispana* Clem. Also at San Bernardino ranch, 1905.  
 5792 *Archips virescana* Clem. San Bernardino ranch, 1905.

## Family YPONOMEUTIDÆ.

- 6040 *Plutella maculipennis* Curt. San Bernardino ranch, 1905.  
*yumatella* Kearfott. New species. San Bernardino ranch,  
 1905. Described in *Canadian Entomologist*, January, 1907.

## Family GELECHIIDÆ.

- 6160 *Phthorimæa operculella* Zell. Also at San Bernardino ranch, 1905.  
 6228 *Gelechia albilorella* Zell.  
 6233 *paulella* Busck.  
 6240 *striatella* Busck.  
 6251 *lindenella* Busck. Also at San Bernardino ranch, 1905.  
 6345 *Trichotaphe inversella* Zell.  
*simpliciella* Busck.  
 6366 *Ypsolophus eupatoriellus* Cham.

## Family BLASTOBASIDÆ.

- Holococera arizoniella* Kearfoot. New species. San Bernardino ranch,  
 1905. Described in *Canadian Entomologist*, January, 1907.

## Family ECOPHORIDÆ.

- 6453 *Ethmia marmorea* Wlsm.

## Family ELACHISTIDÆ.

- 6654 *Scythris trivinctella* Zell. Bill Williams fork, 1903, and San Bernardino ranch, 1905.

## Family TINEIDÆ.

- Amydrya confusella* Dietz. San Bernardino ranch, 1905.  
*arizonella* Dietz. San Bernardino ranch, 1905.  
*marjoriella* Dietz. San Bernardino ranch, 1905.  
*crescentella* Kearfott. New species. Described in *Canadian Entomologist*, January, 1907.  
*Setomorpha operosella* Zell. San Bernardino ranch, 1905.  
*Eulepiste cockerellii* Dyar. San Bernardino ranch, 1905.  
 7119 *maculifer* Wlsm.  
 7129 *Acrolophus simulatus* Wlsm.  
 7134 *Anophora popeanella* Clem. Bill Williams fork, 1903, and San Bernardino ranch, 1905.  
 7138 *Ortholophus variabilis* Wlsm. Also at Bill Williams fork, 1903, and San Bernardino ranch, 1905.  
 7139 *Felderia filicicornis* Wlsm.  
 7141 *Pseudanophora davisellus* Beut.

## SUMMARIES OF FAMILIES AND SPECIES.

Nymphalidæ .....	8	Geometridæ .....	30
Libytheidæ .....	1	Limacodidæ .....	4
Erycinidæ .....	3	Megalopygidæ .....	1
Lycænidæ .....	7	Pyromorphidæ .....	2
Papilionidæ .....	7	Thyridæ .....	1
Hesperidæ .....	12	Pyralidæ .....	47
Sphingidæ .....	2	Pterophoridaæ .....	1
Saturnidæ .....	1	Tortricidæ .....	12
Ceratocampidæ .....	1	Yponomeutidæ .....	2
Syntomidæ .....	2	Gelechiidæ .....	8
Arctiidæ .....	7	Blastobasidæ .....	1
Agaristidæ .....	2	Cecophoridæ .....	1
Noctuidæ .....	56	Elachistidæ .....	1
Notodontidæ .....	7	Tineidæ .....	12
Liparidæ .....	1		

Totals: Families, 29; species, 240.

## III.—LIST OF HEMIPTERA-HETEROPTERA.

For the determination of species in this order the author is indebted to Mr. E. P. Van Duzee.

Numbers according to Uhler's check-list.

## Family SCUTELLERIDÆ.

27 *Sphyrocoris punctellus* Stal.

## Family CORIMELÆNIDÆ.

53 *Corimelæna nitiduloides* Wolff.

58           *extensa* Uhl.

64           *nigra* Dallas.

## Family CYDNIDÆ.

75 *Cyrtomenus mirabilis* Perty.

104 *Pangæus spangbergi* Sign.?

## Family PENTATOMIDÆ.

140 *Perillus confluens* H.-Sch.

146 *Mineus strigipes* H.-Sch.?

186 *Brochymena arborea* Say.

192           *obscura* H.-Sch.

201 *Discocephala clypeata* Stal.

*Hymenarcys crassa* Uhl.

294 *Trichopepla semivittata* Say.

300 *Thyanta custator* Fab. Tucson.

303           *rugulosa* Say, var.

## Family COREIDÆ.

440 *Pachylis gigas* Burm.

446 *Mozena lineolata* H.-Sch.

447           *lunata* Burm.

Family COREIDÆ.

- 482 *Acanthocephala granulosa* Dallas.  
 493 *Leptoglossus zonatus* Dallas.  
 501 *Narnia pallidicornis* Stal.  
     *snowi* Van D. New species. San Bernardino ranch, 1905.  
     Described in *Canadian Entomologist*, January, 1907.  
 527 *Anasa armigera* Say. Tucson.  
 507 *Chelinidea vittigera* Uhl. Also at Tucson.  
 560 *Hyalymenus tarsatus* Fab.  
 563 *Alydus calcaratus* Fab.  
     *setosus* Van D. New species.  
 587 *Harmostes reflexulus* Stal.  
 595 *Corizus hyalinus* Fab. Tucson.

Family BERYTIDÆ.

- Jalysus wickhami* Van D. New species.

Family LYGÆIDÆ.

- 658 *Ligyrocoris sylvestris* Linn.  
 715 *Lygæus facetus* Say.  
 743      *bicolor* H.-Sch.  
 752      *reclivatus* Say.  
 753      *turcius* Fab.  
 759 *Oncopeltus fasciatus* Dallas.  
     *Lygæosoma solida* Uhl.

Family PYRRHOCORIDÆ.

- 766 *Largus succinctus* Linn.  
 773 *Arhappe carolina* H.-Sch.  
 779 *Dysdercus obliquus* H.-Sch.

Family CAPSIDÆ.

- 847 *Phytocoris eximius* Reut.  
 860 *Calocoris rapidus* Say. Tucson.  
 863      *superbus* Uhl. Tucson.  
 864      *fulvomaculatus* De G. Tucson.  
 892 *Lygus scutellatus* Dist. Tucson.  
 902 *Pæciloscytus basalis* Reut. Tucson.

Family ARADIDÆ.

- 1106 *Brachyrhynchus mæstus* Stal.

Family PHYMATIDÆ.

- 1118 *Phymata wolffii* Stal.

Family NABIDÆ.

- 1144 *Coriscus ferus* Linn. Tucson.

Family REDUVIDÆ.

- Sinea rileyi* Montcl.  
     *complexa* Caud. At both camps.  
 1152      *diadema* Fab. Tucson.  
 1197 *Diplodus exsanguis* Stal. Tucson.  
 1209 *Pindus socius* Uhl.

Family REDUVIDÆ.

- 1212 *Apiomerus subpiceus* Stal.?, possibly *immundus* Bergr.
- 1214           *crassipes* Fab.
- 1218           *ventralis* Say.
- spissipes* Say.
- longispinus* Champ.
- Homalocoris minutus* Mayr.
- 1232 *Rasahus thoracicus* Stal.
- 1248 *Conorhinus variegatus* Drury.
- maximus* Uhl.
- Reduvius senilis* Van D. New species.

Family HYDROBATIDÆ.

- 1302 *Hygrotrechus remigis* Say.

Family GALGUDIDÆ.

- 1357 *Gelastocoris oculatus* Fab.
- undetermined species.

Family BELOSTOMATIDÆ.

- Pedinocoris* sp. Tucson.

Family NOTONECTIDÆ.

- 1401 *Notonecta mexicana* Am. et S.

Family CORIXIDÆ.

- Corixa*, two species.

SUMMARY OF FAMILIES AND SPECIES OF HEMIPTERA-HETEROPTERA.

Scutelleridæ.....	1	Aradidæ.....	1
Corimelænidæ.....	3	Phymatidæ.....	1
Cydnidæ.....	2	Nabidæ.....	1
Pentatomidæ.....	9	Reduviidæ.....	15
Coreidæ.....	14	Hydrobatidæ.....	1
Berytidæ.....	1	Galgulidæ.....	2
Lygæidæ.....	7	Belostomatidæ.....	1
Pyrrhocoridæ.....	3	Notonectidæ.....	1
Capsidæ.....	6	Corixidæ.....	2

Totals: Families, 18; species, 71.

## IV.—LIST OF ORTHOPTERA.

The author hereby expresses his grateful acknowledgments to Mr. J. A. G. Rehn, of the Philadelphia Academy of Natural Sciences, for the determination of a large portion of the material in this order of insects. This list includes all the Arizona species collected by the expeditions of 1902, 1903, 1904, 1905, and 1906.

## Family FORFICULIDÆ.

*Apterygida linearis* Esch. San Bernardino ranch.

## Family BLATTIDÆ.

*Pseudomops oblongata* Linn. San Bernardino ranch.

*Stylopyga orientalis* Linn. San Bernardino ranch.

*Homœogamia bolliana* Sauss. Oak creek canyon, Baboquivari mountains.

*erratica* Rehn. New species. San Bernardino ranch, Baboquivari mountains.

## Family MANTIDÆ.

*Litaneutria minor* Scudd. San Bernardino ranch, Baboquivari mountains, Bill Williams fork, Cactus plain.

*Vates paracensis* Sauss. Baboquivari mountains.

*Stagmomantis limbata* Hahn. Bill Williams fork, San Bernardino ranch.

*gracilipes* Rehn. New species. Baboquivari mountains.

## Family PHASMIDÆ.

*Diapheromera arizonensis* Caud. San Bernardino ranch.

*Pseudosermyle truncata* Caud. San Bernardino ranch.

## Family ACRIDIDÆ.

*Tettix granulatus* Kirb. Oak Creek canyon.

*Clypeotettix schochii* Bol. Baboquivari mountains.

*Paratettix toltecus* Sauss. Oak Creek canyon, Bill Williams fork, San Bernardino ranch, Tucson.

*toltecus* Sauss, race *arizonus* Hanc. San Bernardino ranch, Bill Williams fork, Tucson.

*toltecus* Sauss, form *sonorensis* Hanc. Oak Creek canyon, Bill Williams fork, Tucson.

*Telmatettix aztecus* Sauss. Bill Williams fork, Baboquivari mountains, Tucson.

*Achurum acridodes* Stal. Baboquivari mountains.

*Mermiria bivittata* Serv. San Bernardino ranch.

*neomexicana* Thom. Baboquivari mountains.

*texana* Brun. Oak Creek canyon.

*admirabilis* Uhl. San Bernardino ranch, Baboquivari mountains.

*Syrbula fuscovittata* Thom. San Bernardino ranch, Baboquivari mountains.

*Acrocara maculipennis* Scudd. San Bernardino ranch.

*Eritettix variabilis* Brun. San Bernardino ranch.

*Bootettix argentatus* Brun. Bill Williams fork.

*Amphitornus ornatus* McNeill. Oak Creek canyon, Baboquivari mountains.

*Opeia testacea* Scudd. San Bernardino ranch.

## Family ACRIDIIDÆ.

- Cordillacris pima* Rehn. New species. Baboquivari mountains.  
*Orphulella compta* Scudd. Bill Williams fork, San Bernardino ranch.  
*Gomphocerus clepsydra* Scudd. Oak Creek canyon.  
*Boopedon fuscum* Brun. San Bernardino ranch.  
*Psoloessa buddiana* Brun. Baboquivari mountains.  
     *maculipennis* Scudd. Baboquivari mountains, San Bernardino ranch.  
     *texana* Scudd. Baboquivari mountains.  
*Stirapleura pusilla* Scudd. Baboquivari mountains.  
*Ageneotettix australis* Brun. Baboquivari mountains.  
*Aulocara elliotti* Thom. San Bernardino ranch.  
     *rufum* Scudd. San Bernardino ranch, Baboquivari mountains.  
*Ligurotettix kunzei* Caud. Bill Williams fork, Cactus plain.  
*Arphia aberrans* Brun. Baboquivari mountains.  
     *arcta* Scudd. Oak Creek canyon.  
     *crassa* Brun. San Bernardino ranch.  
*Encoptolophus texensis* Brun. San Bernardino ranch, Tucson.  
*Camnula pellucida* Scudd. Oak Creek canyon, Humphrey's Peak, at base.  
*Hippiscus conspicuus* Scudd. Baboquivari mountains.  
     *corallipes* Hald. Baboquivari mountains, San Bernardino ranch.  
*Scyllina calida* Brun. San Bernardino ranch, Baboquivari mountains.  
*Leprus cyaneus* Skll. Baboquivari mountains.  
*Dissosteira carolina* Linn. Oak Creek canyon.  
*Spharagemon collare* Scudd., var. *angustipenne* Morse. San Bernardino ranch.  
*Lactista oslari* Caud. Tucson.  
*Tomonotus aztecus* Sauss. Baboquivari mountains, San Bernardino ranch.  
     *ferrugineus* Brun. Baboquivari mountains.  
*Derotmema delicatum* Scudd. Bill Williams fork, San Bernardino ranch, Baboquivari mountains.  
     *haydeni* Thom. Flagstaff, San Bernardino ranch, Bill Williams fork.  
*Trepidulus rosaceus* McNeill. Bill Williams fork.  
     *melleolus* Scudd. San Bernardino ranch.  
*Mestobregma plattei* Thom. Baboquivari mountains.  
     *rubripennis* Brun. Baboquivari mountains.  
*Conozoa carinata* Rehn. New species. Tucson, Baboquivari mountains.  
     *sulcifrons* Scudd. Bill Williams fork, Baboquivari mountains, Tucson.  
*Trimerotropis bruneri* McNeill. Baboquivari mountains.  
     *cyanipennis* Brun. Oak Creek canyon.  
     *fascicula* McNeill. Oak Creek canyon, Humphrey's Peak, at base, Baboquivari mountains.  
     *laticincta* Sauss. San Bernardino ranch, Flagstaff.  
     *modesta* Brun. Oak Creek canyon.  
     *snowi* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 223.) Congress Junction.  
     *strenua* McNeill. San Bernardino ranch.  
     *vinculata* Scudd. Oak Creek canyon, San Bernardino ranch, Tucson, Baboquivari mountains.  
*Circotettix undulatus* Thom. Oak Creek canyon, Humphrey's Peak, at base.

## Family ACRIDIIDÆ.

- Anconia integra* Scudd. Bill Williams fork.  
*Heliastes aridus* Brun. Bill Williams fork, San Bernardino ranch, Congress Junction, Baboquivari mountains.  
     *benjamini* Caud. Baboquivari mountains.  
     *minimus* Scudd. Bill Williams fork.  
*Tytthotyle maculata* Brun. Bill Williams fork.  
*Brachystola intermedia* Brun. San Bernardino ranch.  
*Phrynotettix magnus* Thom. San Bernardino ranch, Baboquivari mountains.  
*Paropomala cylindrica* Brun. San Bernardino ranch.  
*Leptysmia marginicollis* Serv. Bill Williams fork.  
*Schistocerca shoshone* Thom. Bill Williams fork, San Bernardino ranch.  
     *vaga* Scudd. Bill Williams fork, San Bernardino ranch, Tucson, Baboquivari mountains.  
     *venusta* Scudd. Oak Creek canyon.  
*Conalceæa huachucana* Rehn. Baboquivari mountains.  
*Hesperotettix festivus* Scudd. Tucson, Baboquivari mountains.  
*Æoloplus tenuipennis* Scudd. Bill Williams fork.  
*Melanoplus aridus* Scudd. San Bernardino ranch.  
     *atlantis* Riley. San Bernardino ranch, Baboquivari mountains.  
     *brownii* Caud. Baboquivari mountains.  
     *canonicus* Scudd. Bill Williams fork, Tucson.  
     *differentialis* Uhl. San Bernardino ranch.  
     *femur-rubrum* De G. San Bernardino ranch.  
     *flavescens* Scudd. Bill Williams fork.  
     *flavidus* Scudd. Oak Creek canyon, Bill Williams fork, San Bernardino ranch.  
     *olivaceus* Scudd. Oak Creek canyon.  
     *spretus* Uhl. Tucson, Baboquivari mountains.  
     *thomasi* Scudd. San Bernardino ranch.  
     *yarrowi* Thom. Bill Williams fork.  
*Phœtalotes nebrascensis* Thom. San Bernardino ranch.  
*Pœcilotettix sanguineus* Scudd. Bill Williams fork.  
*Dactylotum pictum* Thom. Baboquivari mountains.

## Family LOCUSTIDÆ.

- Hormilia elegans* Scudd. San Bernardino ranch.  
*Arethæa constricta* Brun. Baboquivari mountains, Tucson.  
*Scudderia furcifera* Scudd. Oak Creek canyon.  
     *mexicana* Sauss. Tucson, Baboquivari mountains.  
*Amblycorypha huasteca* Sauss. Oak Creek canyon.  
*Microcentrum laurifolium* Linn. Oak Creek canyon.  
*Conocephalus mexicanus* Sauss. Bill Williams fork.  
*Xiphidium fasciatum* De G. San Bernardino ranch.  
*Capnobotes fuliginosus* Thom. Congress Junction, San Bernardino ranch, Baboquivari mountains.  
*Eremopedes ballii* Caud. Oak Creek canyon, Baboquivari mountains.  
     *unicolor* Scudd. San Bernardino ranch, Baboquivari mountains.  
*Plagiostira gracilis* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 227.) Bill Williams fork.



## Family LOCUSTIDÆ.

- Ateloplus notatus* Scudd. Bill Williams fork, Baboquivari mountains, Tucson.  
*Stenopelmatus oculatus* Scudd. Oak Creek canyon, Humphrey's Peak, at base.  
*Ceuthophilus paucispinosa* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 227.) Oak Creek canyon.  
*Phrixocnemis franciscanus* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 228.) Humphrey's Peak, at base.  
*socorrensis* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 229.) Humphrey's Peak, at base.  
*Udeopsylla serrata* Rehn. New species. (Trans. Kan. Acad. Sci., vol. XIX, p. 230.) Oak Creek canyon.

## Family GRYLLIDÆ.

- Ellipes minuta* Scudd. San Bernardino ranch.  
*Tridactylus apicalis* Say. Bill Williams fork.  
*Nemobius neomexicanus* Scudd. San Bernardino ranch.  
*Gryllus armatus* Scudd. San Bernardino ranch, Baboquivari mountains, Tucson.  
*pennsylvanicus* Burm. Bill Williams fork.  
*personatus* Uhl. San Bernardino ranch.  
*Miogryllus lineatus* Scudd. Baboquivari mountains.  
*Cecanthus californicus* Sauss.? Tucson, Baboquivari mountains.  
*quadripunctatus* Reut. Bill Williams fork, Oak Creek canyon, San Bernardino ranch.

## SUMMARY OF FAMILIES AND SPECIES OF ORTHOPTERA.

Forficulidæ.....	1	Acridiidæ.....	90
Blattidæ.....	4	Locustidæ.....	18
Mantidæ.....	4	Gryllidæ.....	9
Phasmidæ.....	2		

Totals: Families, 7; species 128.